ABSTRACT

METHODS TOWARD THE STUDY OF FEEDING BEHAVIOR: A FAUNAL APPROACH

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Acridologists have a good understanding of food-habits in several hundred grasshopper and locust species from which can be extrapolated generalizations relative to the subordinate taxonomic groups. Unfortunately, they know little of the insects' feeding on a faunal basis.

The food-habits of Acrididae are best studied throungh a battery of methods, including (1) analysis of mandibular adaptation (graminivorous type, forbivorous-type, and herbivorous-type adaptations are readily recognizable); (2) analysis of crop contents (trichomes, guard and subsidiary cells, and specialized epidermal cells are diagnostic, sometimes to the specific level, particularly in the case of limited, known florae); (3) field observations of feeding (often more useful for other orthopteroids than for grasshoppers); and (4) differential feeding tests (which disclose food preferences, with the factor of food availability canceled out).

The detailed, battery approach outlined above involves an expenditure of time and effort that most acridologists on field excursion find prohibitive. The uncomplicated "Rapid Survey Method", which can be carried out with minimal effort during standard collecting, is more suited to their needs. The "Rapid Survey Method" involves individual tubes fashioned of cut newspaper into which living grasshoppers are thrust. The insects defecate often until killed 12-24 hours later. They are then available for standard taxonomic study after their mouthpart adaptation has been determined. The feculae are harvested for determination of gross form and for cytologic analysis of the content.

The results may be presented in a series of bar graphs summarizing feeding in the fauna. These graphs may be compared with similar graphs for other faunae.